



PATENT  
0032-0264

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Applicant: ARIMURA, Akinori et al. Conf.: 3377  
Appl. No.: 09/980,475 Group: 1614  
Filed: December 3, 2001 Examiner: Unassigned  
For: TH2 DIFFERENTIATION INHIBITORS

L E T T E R

Assistant Commissioner for Patents  
Washington, DC 20231

March 26, 2002

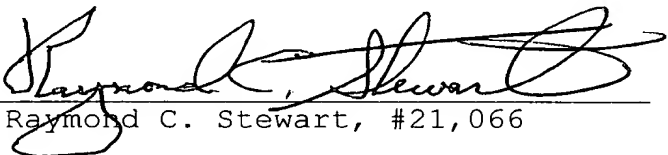
Sir:

Subsequent to the filing of the above-identified application on December 3, 2001, attached hereto is an English translation of the International Preliminary Examination Report (IPEA 409) which should be made of record in the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By   
Raymond C. Stewart, #21,066

KLR  
RCS/KLR:bmp  
0032-0264P

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000



## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 72.2)

From the INTERNATIONAL BUREAU

To:

YAMAUCHI, Hideaki  
Shionogi & Co., Ltd. Intellectual  
Property Department  
12-4, Sagisu 5-chome  
Fukushima-ku, Osaka-shi  
Osaka 553-0022, JP  
JAPON

Case No.	51-06041WO
Response	#

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Date of mailing (day/month/year) 20 February 2002 (20.02.02)	
Applicant's or agent's file reference 51-06041WO	IMPORTANT NOTIFICATION
International application No. PCT/JP00/04725	International filing date (day/month/year) 14 July 2000 (14.07.00)
Applicant SHIONOGI & CO., LTD. et al	

## 1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

## 2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

EP, AT, CA, CH, CN, FI, NO, NZ, RO, RU, SK, US



The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AP, EA, AE, AG, AL, AM, AU, AZ, BA, BB, BG, BR, BY, BZ, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, PL, PT, SD, SE, SG, SI, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, OA

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Eliott PERETTI
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 51-06041 WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP00/04725	International filing date (day/month/year) 14 July 2000 (14.07.00)	Priority date (day/month/year) 23 July 1999 (23.07.99)
International Patent Classification (IPC) or national classification and IPC A61K 31/09, 31/136, 31/15, 31/235, 31/4418, 31/4965, 31/50, 31/505, C07C 217/80, C07D 213/64, 213/74, 213/77, 237/10, 239/28, 241/14, A61P 37/06, 1/04, 21/04, 15/00		
Applicant SHIONOGI & CO., LTD.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 10 October 2000 (10.10.00)	Date of completion of this report 28 July 2001 (28.07.2001)
Name and mailing address of the IPEA/JP  Facsimile No.	Authorized officer  Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP00/04725

## I. Basis of the report

### 1. With regard to the **elements** of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages 1-88, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages 1-22, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages 23, filed with the letter of 15 January 2001 (15.01.2001)
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP00/04725

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
- ☒ claims Nos. 19,20

because:

- ☒ the said international application, or the said claims Nos. 19,20  
relate to the following subject matter which does not require an international preliminary examination (*specify*):

The inventions set forth in Claims 19 and 20 relate to a method for treatment of the human body by therapy, which does not require an international preliminary examination by the International Preliminary Examining Authority in accordance with PCT Article 34(4)(a)(i) and Rule 67.1(iv).

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. \_\_\_\_\_  
are so unclear that no meaningful opinion could be formed (*specify*):

- ☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported  
by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for said claims Nos. 19,20

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
- ☐ the computer readable form has not been furnished or does not comply with the standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-18,21-23	YES
	Claims		NO
Inventive step (IS)	Claims	1-18,21-23	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-18,21-23	YES
	Claims		NO

**2. Citations and explanations**

Document 1: WO, 98/04508, A1 (Shionogi & Co., Ltd.) 5 February 1998 (05.02.98)

Document 2: Nikkei Bio Tech., "Nikkei Baio Saishin Yougo Jiten; 4th printing," Nikkei BP K.K. (30 June 1995) p. 644, "Helper T. Cell; Th."

Document 3: Tomio Tada, et al., "Menekigaku Yougo Jiten; 3rd printing," Saishin Igakusha (1 December 1993),  
p. 374, "Lupus nephritis"  
p. 414, "Myasthenia gravis"  
p. 587, "Ulcerative colitis"

Document 1 describes a selective inhibitor of IgE production that contains the compound set forth in Formula (I) of Claim 1, and it states that this compound has the effect of inhibiting the production of IL-4 and IL-5 in a strain of mouse T cells (p. 470-471).

Document 2 states that Th2 secretes IL-4 and IL-5, and document 3 states that ulcerative colitis, myasthenia gravis and lupus nephritis are autoimmune disorders and that immunosuppressants are used in treating them.

However, document 1 does not describe a Th2 differentiation inhibitory action, and persons skilled in the art cannot easily conceive of using the selective inhibitor of IgE production described in document 1 as a Th2 differentiation inhibitor, even when combined with the descriptions in documents 2 and 3.

Therefore, the inventions set forth in Claims 1-18 and 21-23 appear to be novel and appear to involve an inventive step.

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Formula (I) of Claim 1, Formula (Ib) of Claim 6 and Formula (Ic) of Claim 7 include an extremely wide range of compounds.

However, the Specification does not specifically disclose examples of Formula (I) in which either ring A, B, or C is a 5-membered heterocycle, X is a single bond, and R<sup>1</sup> is combined with Y to form a nitrogen-containing ring; examples of Formula (Ib) in which C is a 5-membered heterocycle, and V<sup>1</sup> and V<sup>2</sup> are single bonds; and examples of Formula (Ic) in which either ring A, B, or C is a 5-membered heterocycle, and because the Th2 differentiation inhibitory action is only verified in a limited number of compounds, the Specification does not sufficiently support Claims 1, 6, and 7.